

### **REMARKS/ARGUMENTS**

Reexamination of the captioned application is respectfully requested.

#### **A. SUMMARY OF THIS AMENDMENT**

By the current amendment, Applicants basically:

1. Editorially amend the specification.
2. Cancel claim 2 without prejudice or disclaimer.
3. Amend claims 1 and 13.
4. Add new dependent claims 15-16.
5. Affirm election of claims 1-9, 13 and 14.
6. Respectfully traverse all prior art rejections.
7. Advise the Examiner of the simultaneous filing of a Petition to Extend.

#### **B. AFFIRMATION OF ELECTION**

The undersigned affirms the election of Group I, claims 1-9, 13 and 14. In view of the election, claims 10 – 12 are withdrawn with right reserved to include the same in a divisional patent application.

#### **C. NO DOUBLE PATENTING**

Claims 1-9, 13 and 14 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of copending application no. 10/167,649 (see enumerated paragraph 14 of the Office Action). Copending application no. 10/167,649 corresponds to U.S. Publication 2003/0000571 to Wakuda et al. However, none of claims 1-29 of copending application no. 10/167,649 which are alleged by the office action as basis for the double patenting rejection are still pending in copending application no. 10/167,649 (i.e., claims 1-29 of copending application no. 10/167,649 have been cancelled). Therefore, the provisional nonstatutory obviousness-type double patenting rejection is traversed as moot.

#### D. PATENTABILITY OF THE CLAIMS

Claims 1-9, 13 and 14 stand rejected under 35 USC 102(b) as being anticipated by JP 61-108178. Claims 1, 2, 4, 5, 6, 8 and 9 stand rejected under 35 USC 102(e) as being anticipated by U.S. Publication 2003/0000571 to Wakuda et al. Claim 2 stands rejected under 35 USC 103(a) as being unpatentable over JP 61-108178 as applied to claims 1, 4-9, 13 and 14 above, and further in view of U.S. Publication 2001/0029977 to Oya. Claim 3 stands rejected under 35 USC 103(a) as being unpatentable over JP 61-108178 as applied to claims 1, 4-9, 13 and 14 above, and further in view of U.S. Patent 6,288,323 to Hayashi et al. All prior art rejections are respectfully traversed for at least the following reasons.

By the present amendment, the limitations of dependent claim 2 have been included into independent claims 1 and 13. Thus, as amended, independent claims 1 and 13 require that the rear electrode be a porous sintered metal layer formed by firing an aluminum paste containing aluminum powder, the sintered metal layer being impregnated with an adhesive, the metal foil being bonded to the sintered metal layer in direct contact with the sintered metal layer by the adhesive.

Neither U.S. Publication 2003/0000571 to Wakuda et al nor U.S. Publication 2001/0029977 to Oya teach the adhesive impregnated sintered metal layer.

The office action incorrectly alleges that U.S. Publication 2003/0000571 to Wakuda et al discloses creating rear electrode by firing an aluminum paste with an adhesive to attach an aluminum plate.

U.S. Publication 2003/0000571 to Wakuda et al teaches that aluminum paste 1c is printed on a back surface of a solar cell substrate and, before it is dried, an aluminum reinforcing plate is bonded to aluminum paste 1c (*see, e.g.,* paragraph [0064] of U.S. Publication 2003/0000571 to Wakuda et al). By drying and baking the aluminum paste 1c, aluminum reinforcing plate 14 is joined to cell substrate 1a. U.S. Publication 2003/0000571 to Wakuda et al does not describe aluminum paste 1c, if it is assumed (merely for sake of argument) to be a sintered metal layer, as being impregnated with an

adhesive. Rather, it appears that it is the drying and baking of the aluminum paste 1c (not an adhesive) that causes the bonding<sup>1</sup>. Applicants believe that none of the embodiments of U.S. Publication 2003/0000571 to Wakuda et al uses an adhesive impregnated paste on the back of a solar cell.

The office action further incorrectly alleges that Oya teaches (in paragraph [0006]) teaches a conductive paste that contains aluminum powder, an organic vehicle and glass frit, and an adhesive, the paste being fired to create an electrode. Despite the allegations of the office action, Applicants see no mention in U.S. Publication 2001/0029977 to Oya of an adhesive impregnated sintered metal layer. In fact, paragraph [0006] of Oya as cited by the office action is curiously devoid of any explicit mention of an adhesive:

[0006] In order to form the back-surface electrode 15, an electrode coating is formed by printing a conductive paste, in which aluminum powder 15a and glass frit are dispersed in an organic vehicle, on the side of the p-type silicon layer 12a of the Si wafer 12. The electrode coating is dried, and by firing at a temperature which is equal to or higher than the melting point of the aluminum powder, i.e., at 660°C. or higher, with a near-infrared heating oven in air, the organic component is removed and the aluminum powder 15a is sintered, and thus the back-surface electrode 15 containing aluminum as a principal ingredient is obtained.

Applicants submit that neither the organic vehicle nor glass frit of Oya constitutes the adhesive, and thus U.S. Publication 2001/0029977 to Oya makes no teaching or suggestion of an adhesive impregnated sintered metal layer.

In view, e.g., of the foregoing and other considerations, independent claims 2 and 13 are deemed allowable. Others of Applicants' dependent claims are considered to have separate patentable merit. For example, Applicants' new dependent claims 15 and 16 specify that the adhesive can be a heat sensitive adhesive (see page 12, lines 8+ of the specification).

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<sup>1</sup> U.S. Publication 2003/0000571 to Wakuda et al does describe in paragraph [0065] another technique in which welding is used for the bonding.

**E. MISCELLANEOUS**

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application, including but not limited to extension of time and/or additional claims fees.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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